

## **ATTACHMENT 10**

**Cross-hole sonic plots**  
**Abutment 1 Shafts 1, 2, 3 and 4**  
**Abutment 2 Shafts 1, 2, 3 and 4**

(Malcolm Drilling Company, Inc.)

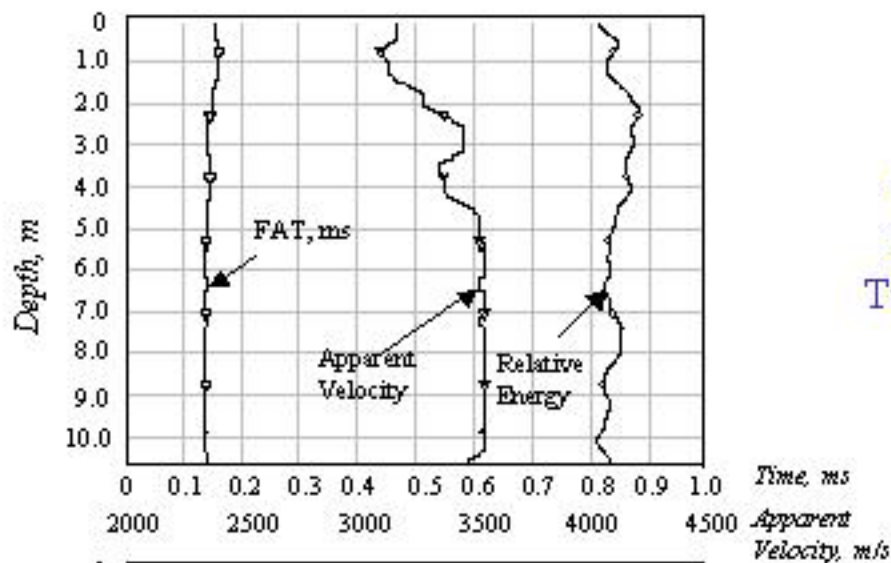
**PINEY CREEK BRIDGE**  
**ARROYO SECO BRIDGES**  
**CA PFH 129-1(1)**

**PINEY CREEK BRIDGE  
ARROYO SECO BRIDGES  
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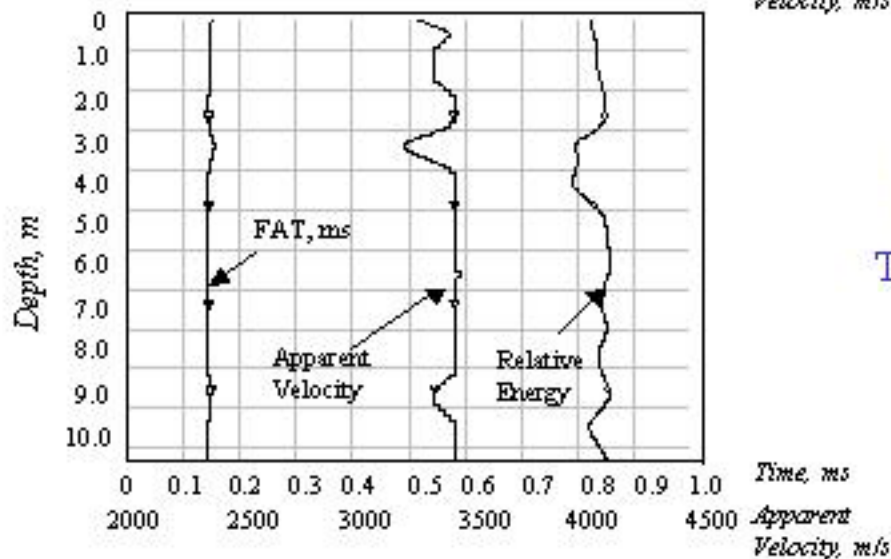
**Abutment 1 Shafts 1, 2, 3 and 4**

# Piney Creek Bridge

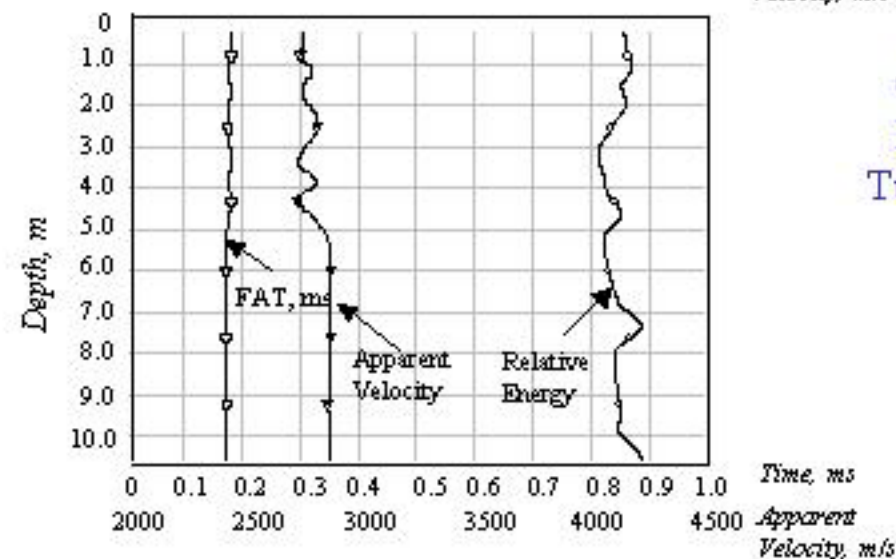
## Abutment 1 Shaft 1



CSL Log  
Between  
Tubes 1 & 2



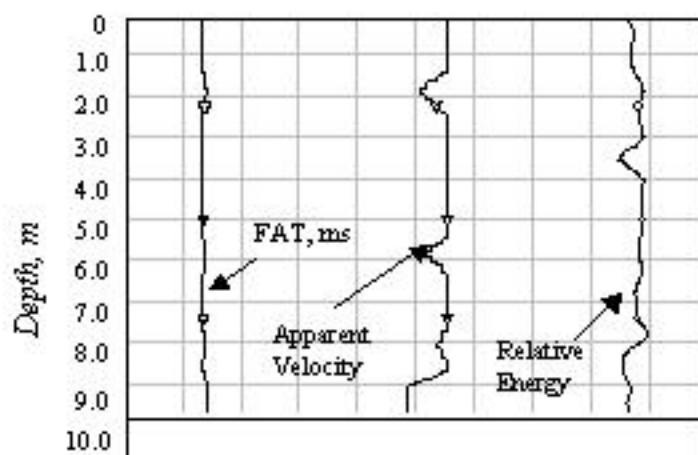
CSL Log  
Between  
Tubes 1 & 3



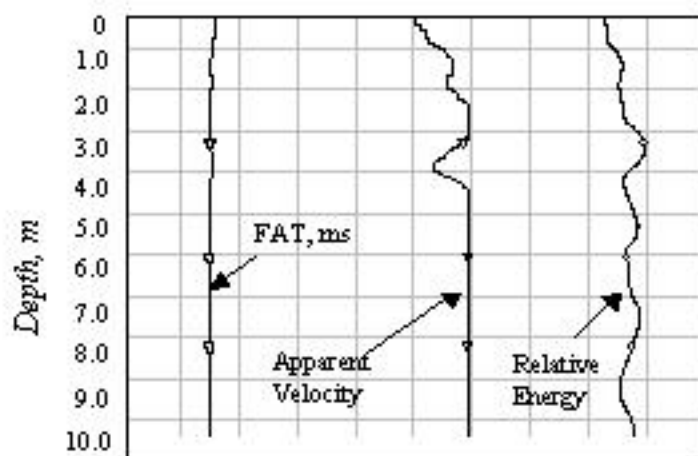
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

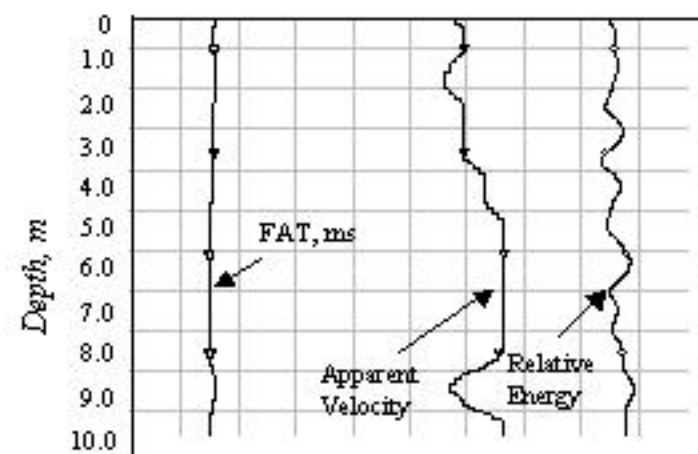
## Abutment 1 Shaft 2



CSL Log  
Between  
Tubes 1 & 2



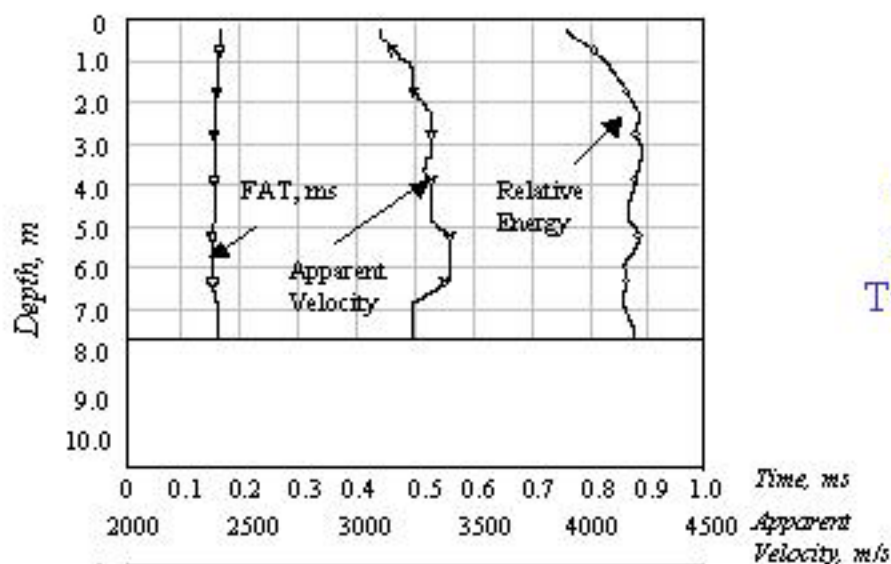
CSL Log  
Between  
Tubes 1 & 3



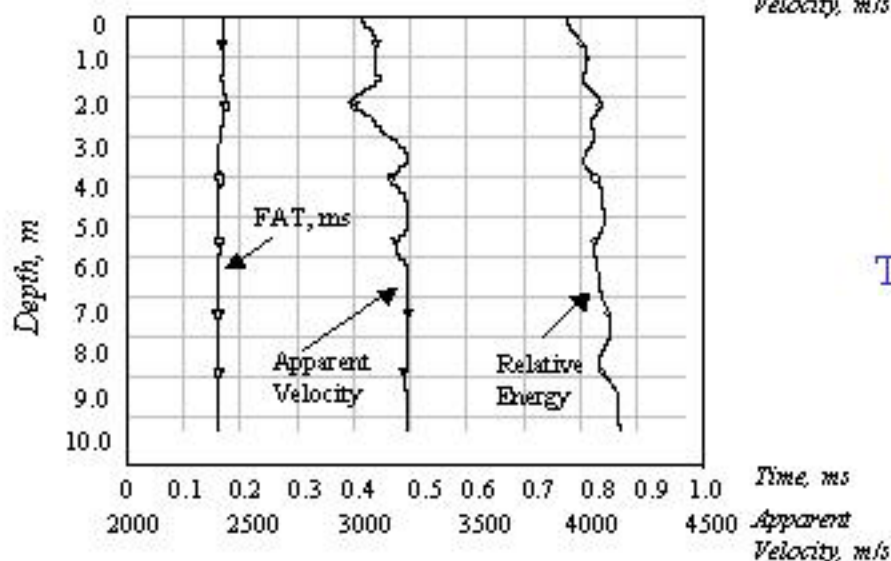
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

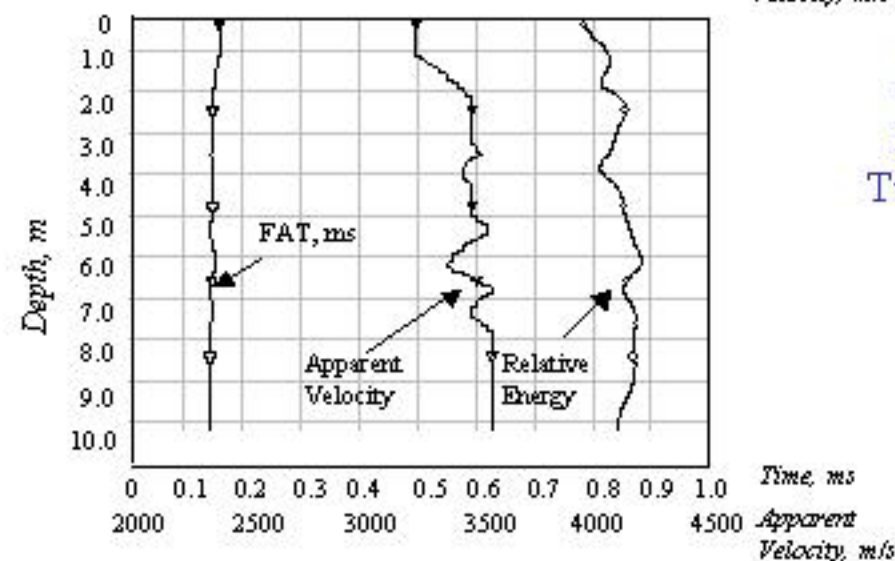
## Abutment 1 Shaft 3



CSL Log  
Between  
Tubes 1 & 2



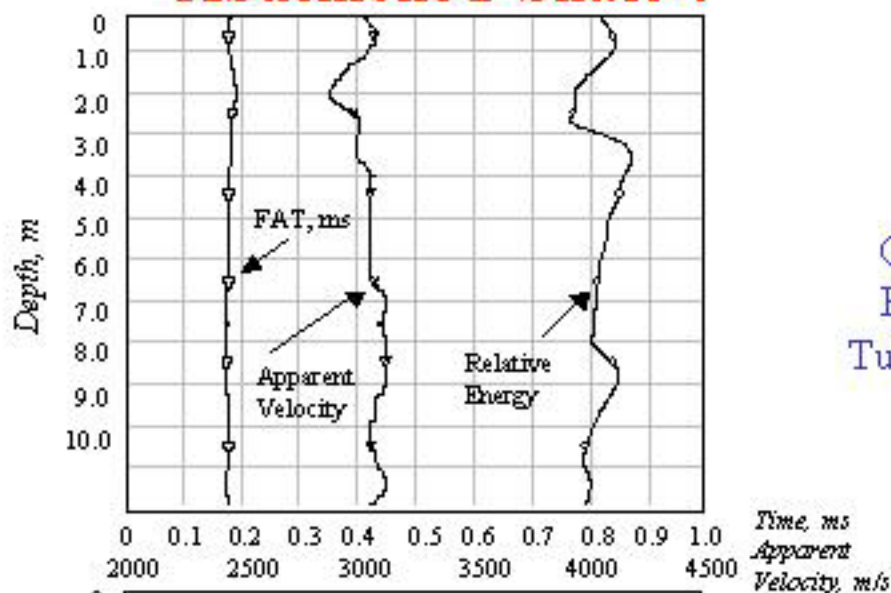
CSL Log  
Between  
Tubes 1 & 3



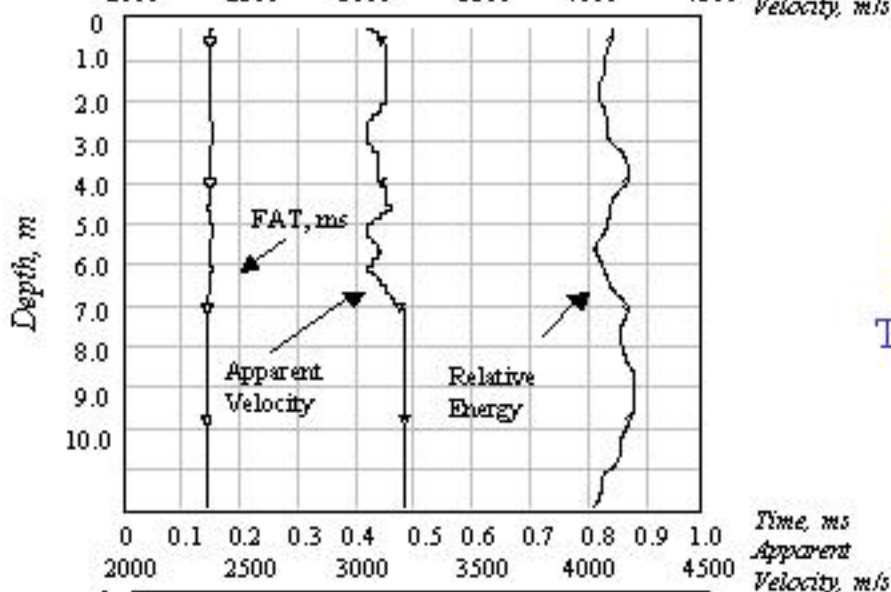
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

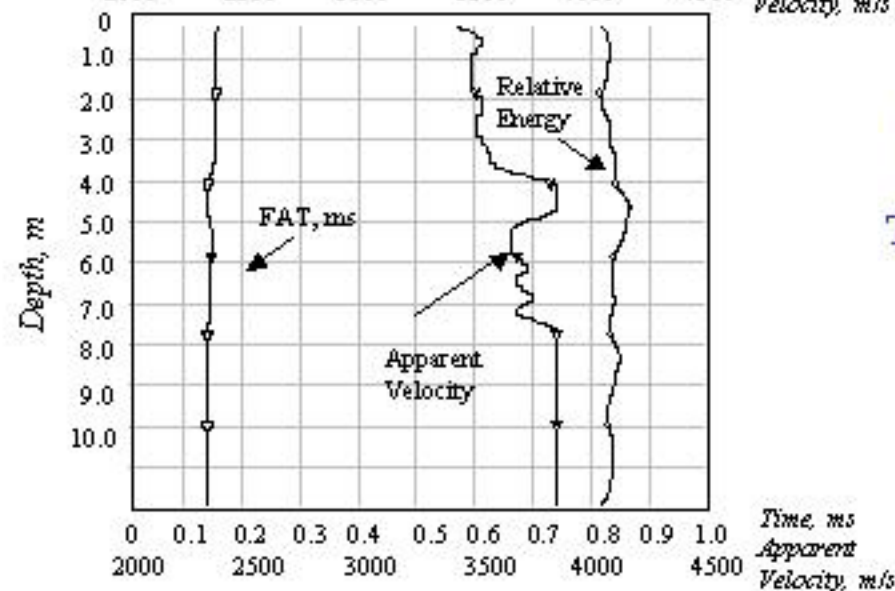
## Abutment 1 Shaft 4



CSL Log  
Between  
Tubes 1 & 2



CSL Log  
Between  
Tubes 1 & 3



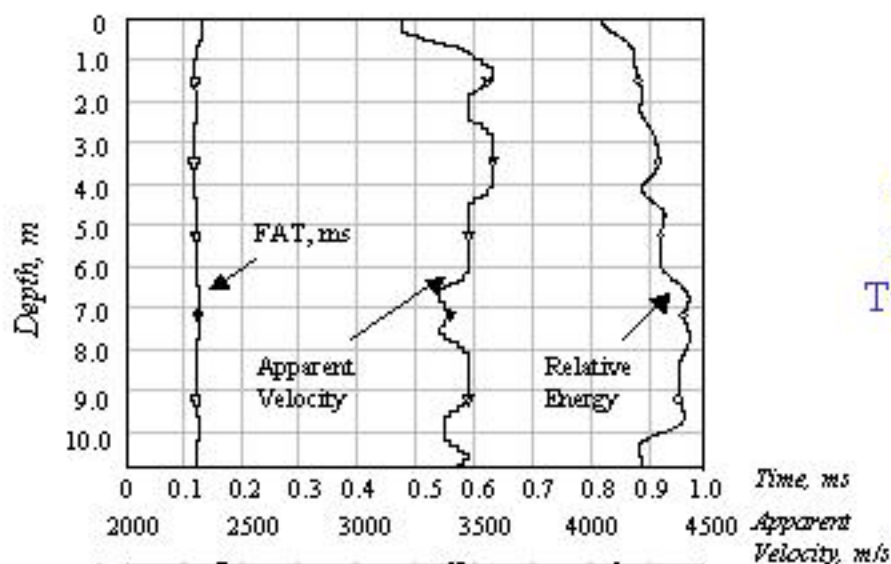
CSL Log  
Between  
Tubes 2 & 3

**PINEY CREEK BRIDGE  
ARROYO SECO BRIDGES  
CA PFH 129-1(1)**

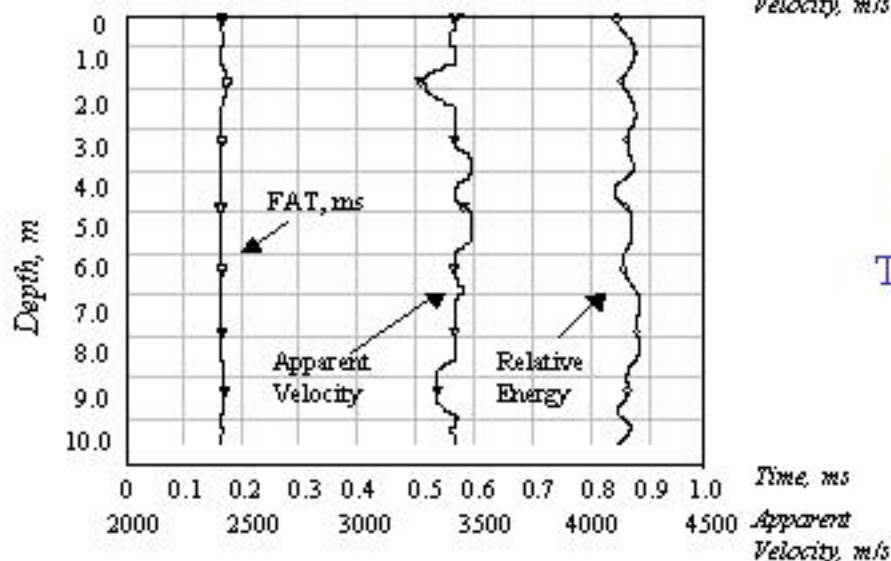
**Abutment 2 Shafts 1, 2, 3 and 4**

# Piney Creek Bridge

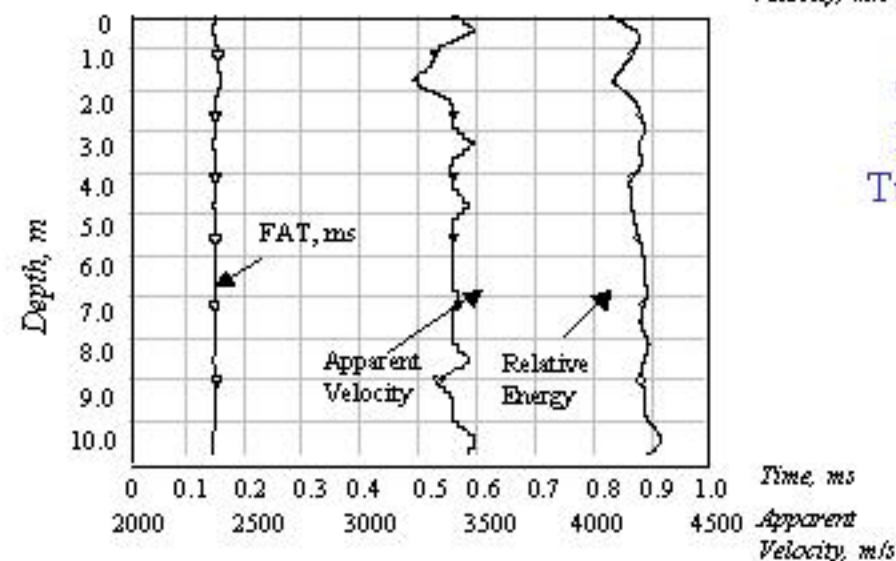
## Abutment 2 Shaft 1



CSL Log  
Between  
Tubes 1 & 2



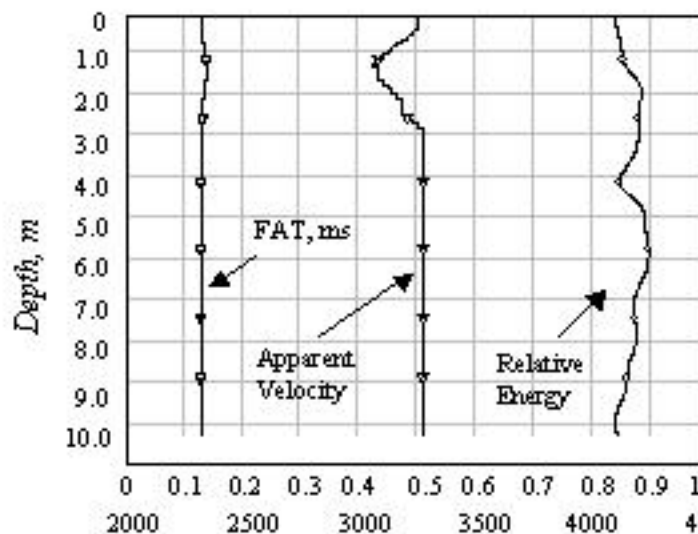
CSL Log  
Between  
Tubes 1 & 3



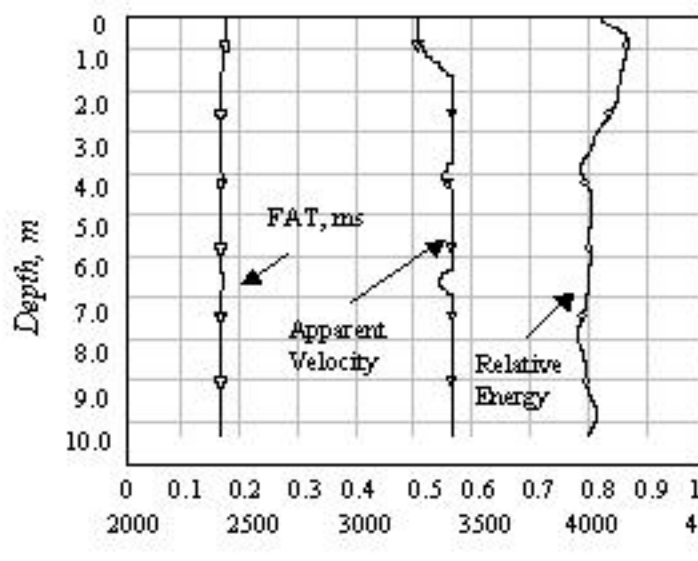
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

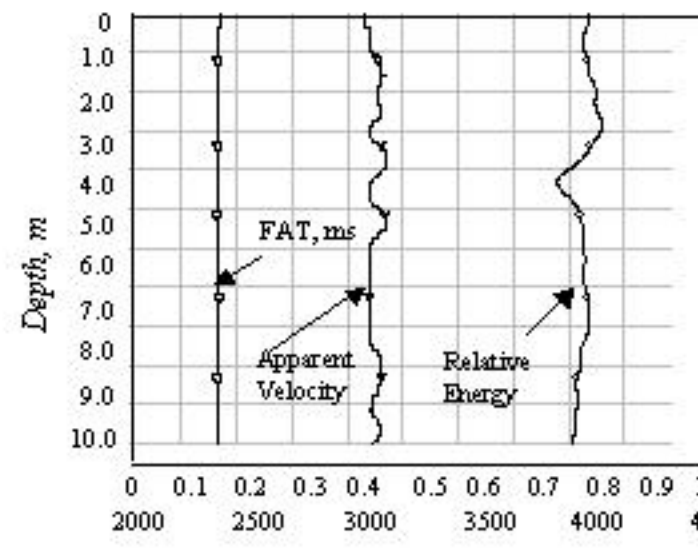
## Abutment 2 Shaft 2



CSL Log  
Between  
Tubes 1 & 2



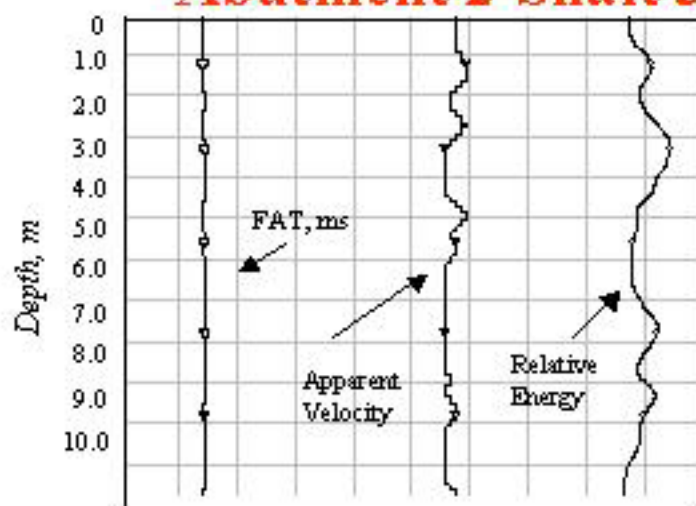
CSL Log  
Between  
Tubes 1 & 3



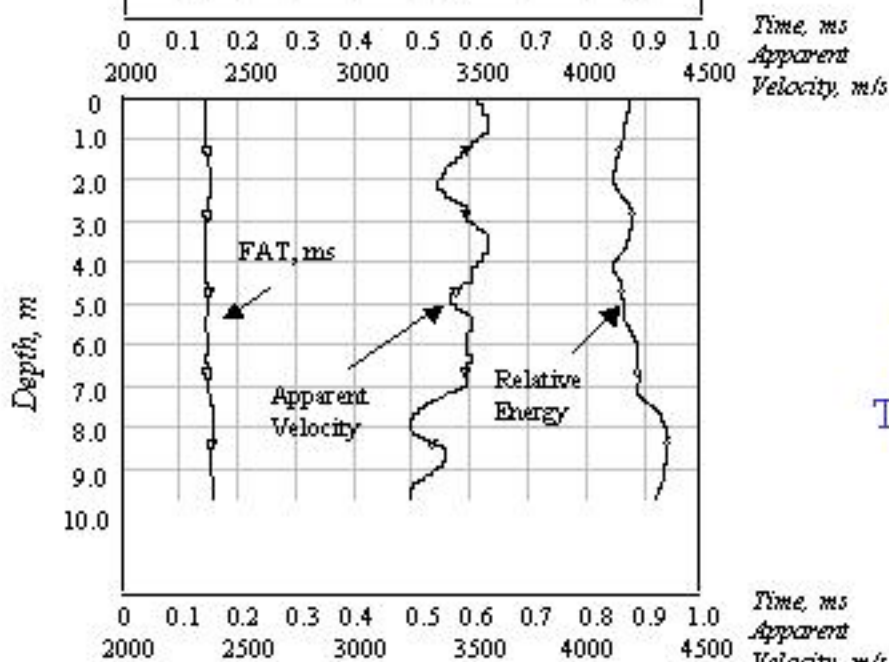
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

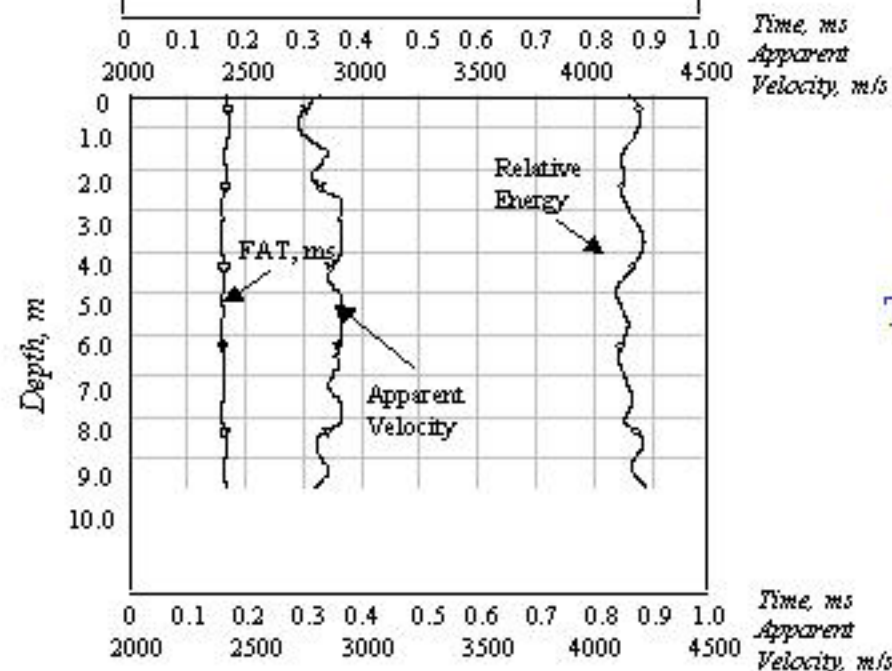
## Abutment 2 Shaft 3



CSL Log  
Between  
Tubes 1 & 2



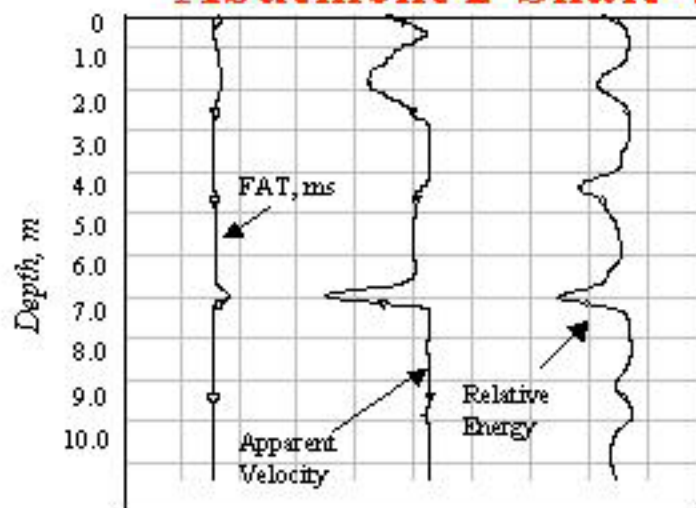
CSL Log  
Between  
Tubes 1 & 3



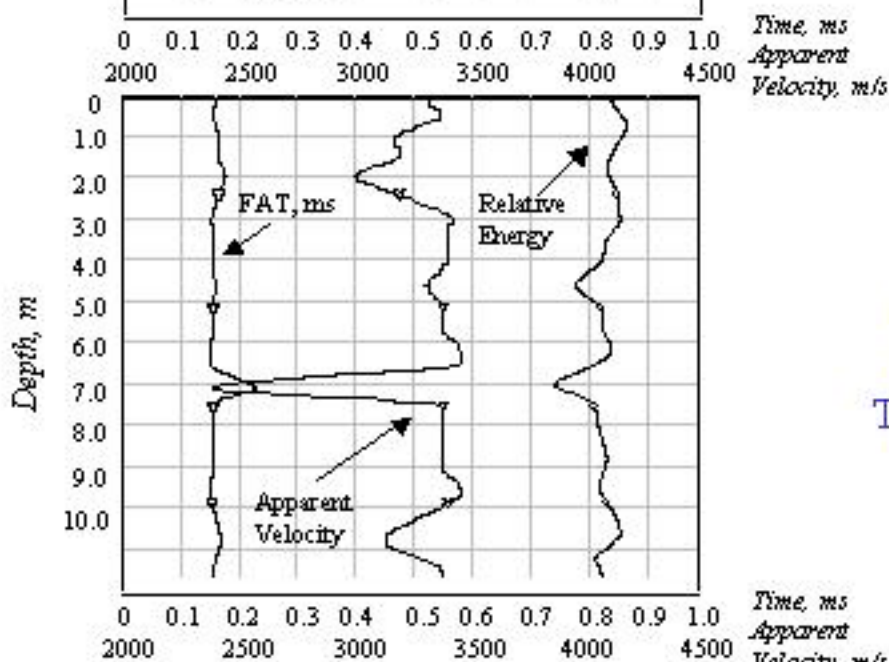
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

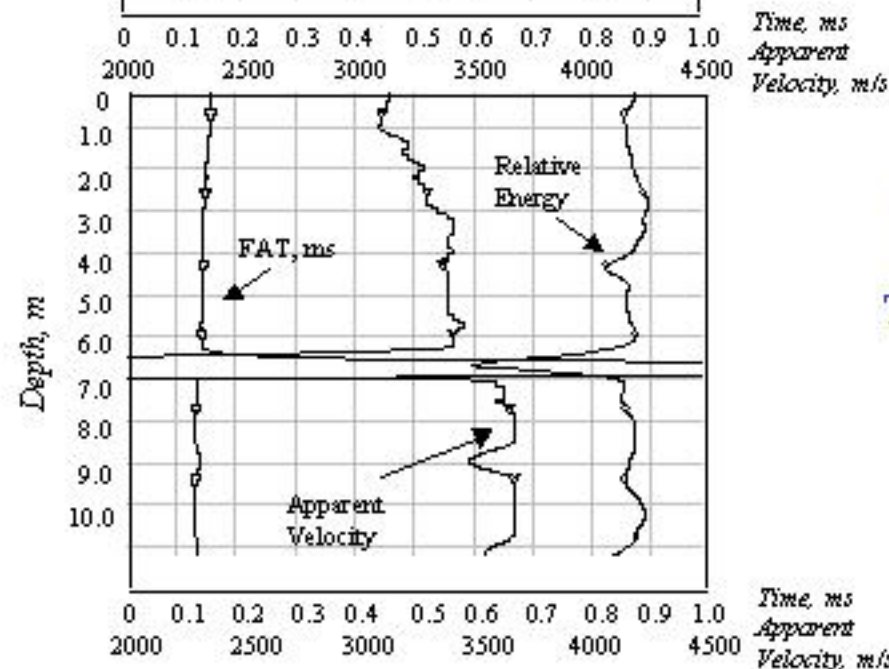
## Abutment 2 Shaft 4



CSL Log  
Between  
Tubes 1 & 2



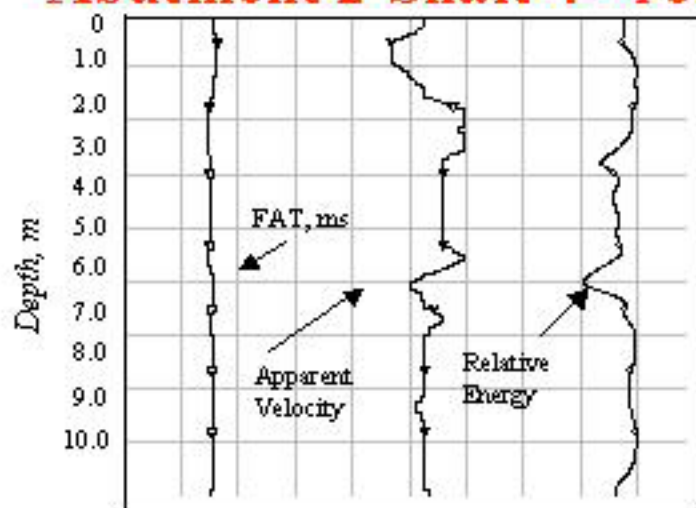
CSL Log  
Between  
Tubes 1 & 3



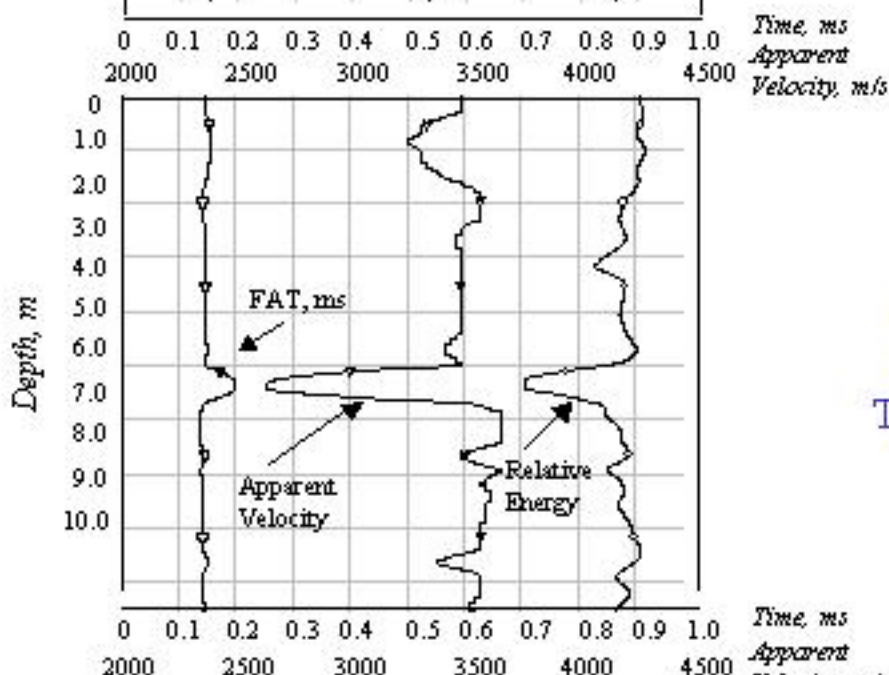
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

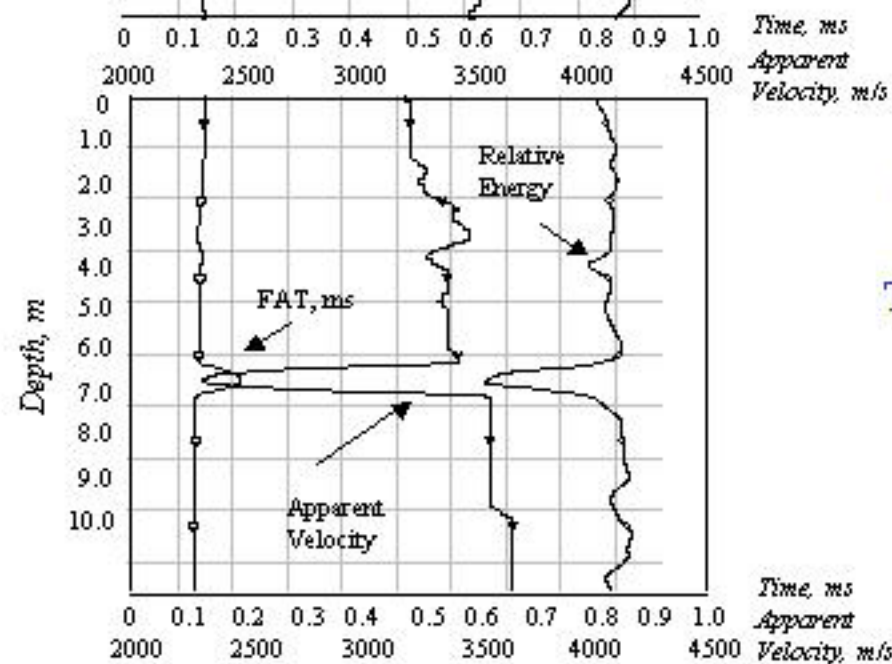
## Abutment 2 Shaft 4 - retest



CSL Log  
Between  
Tubes 1 & 2



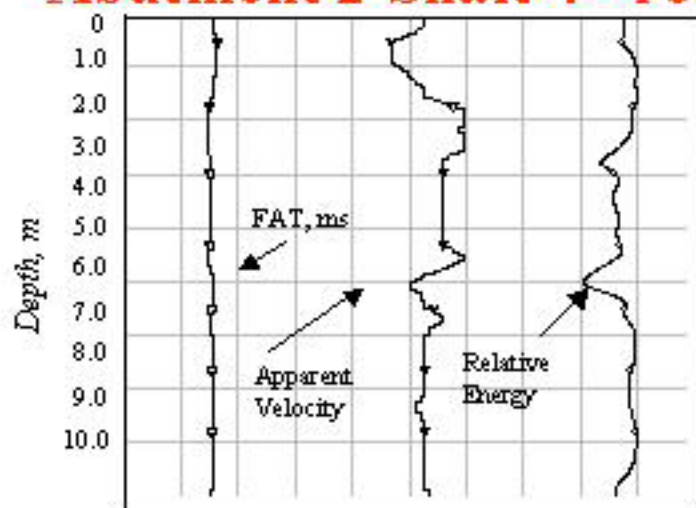
CSL Log  
Between  
Tubes 1 & 3



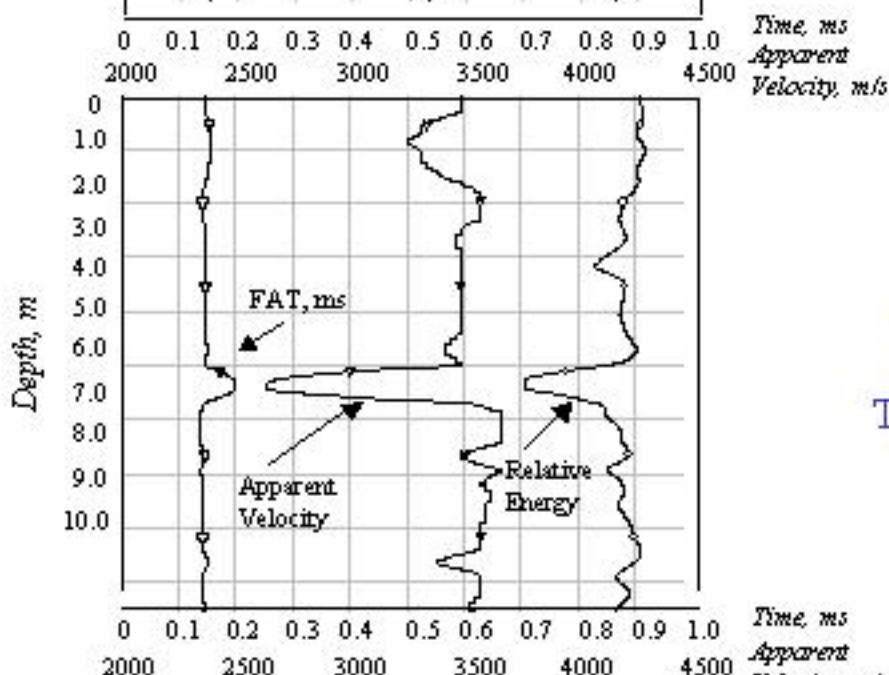
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

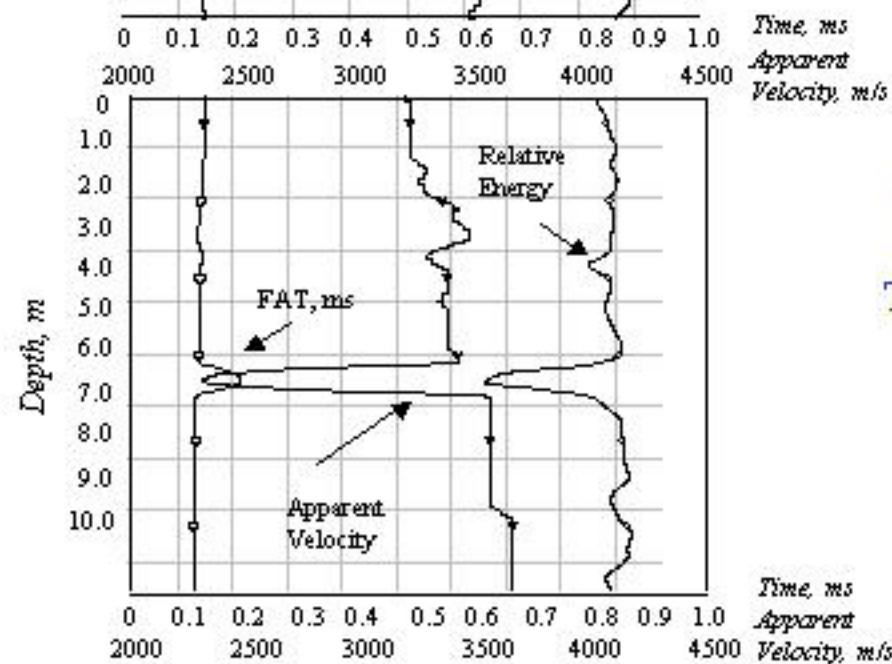
## Abutment 2 Shaft 4 - retest



CSL Log  
Between  
Tubes 1 & 2



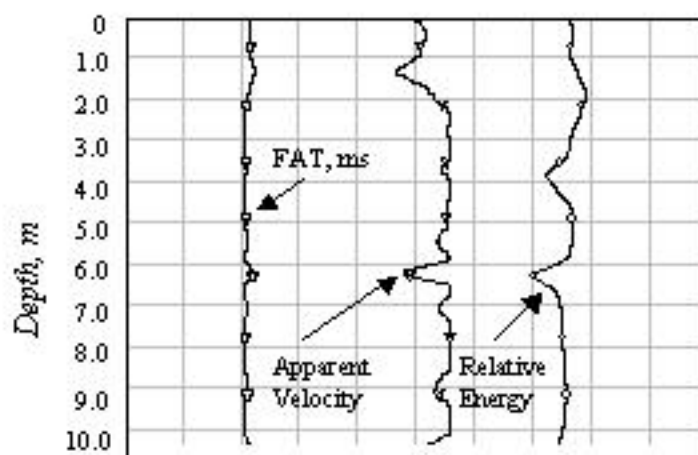
CSL Log  
Between  
Tubes 1 & 3



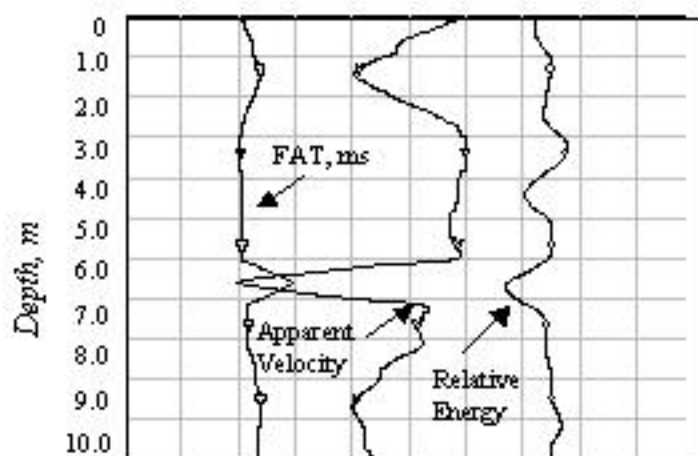
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

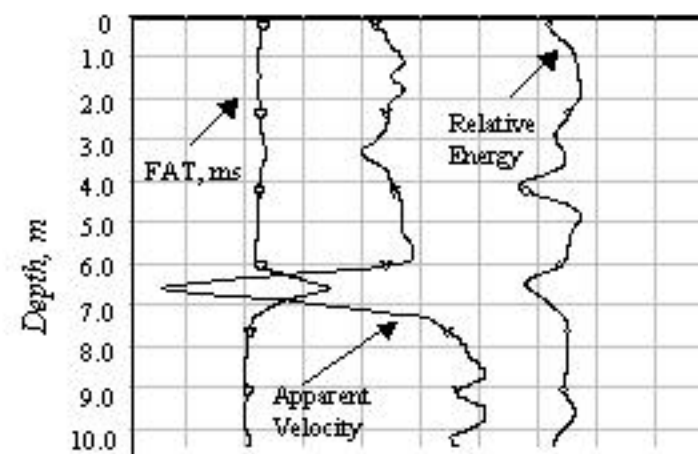
## Abutment 2 Shaft 4 with the offset



CSL Log  
Between  
Tubes 1 & 2



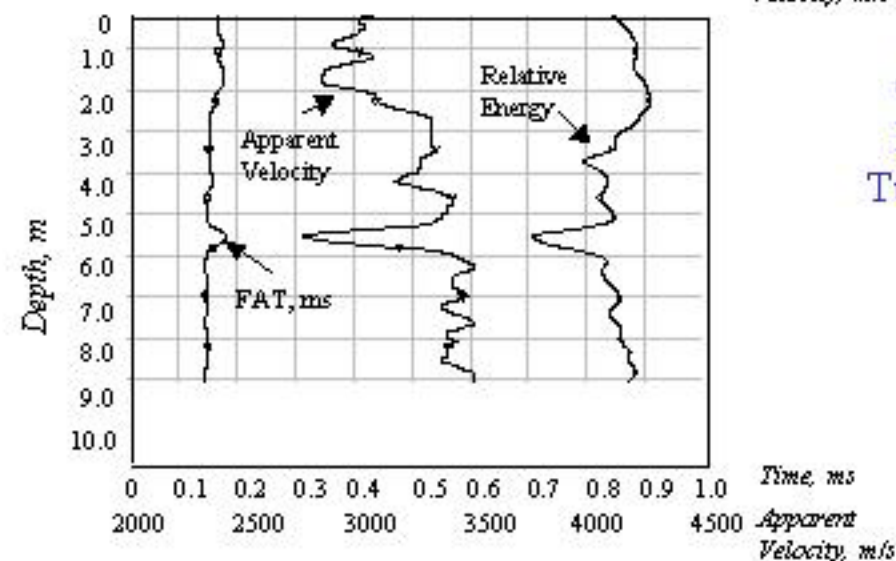
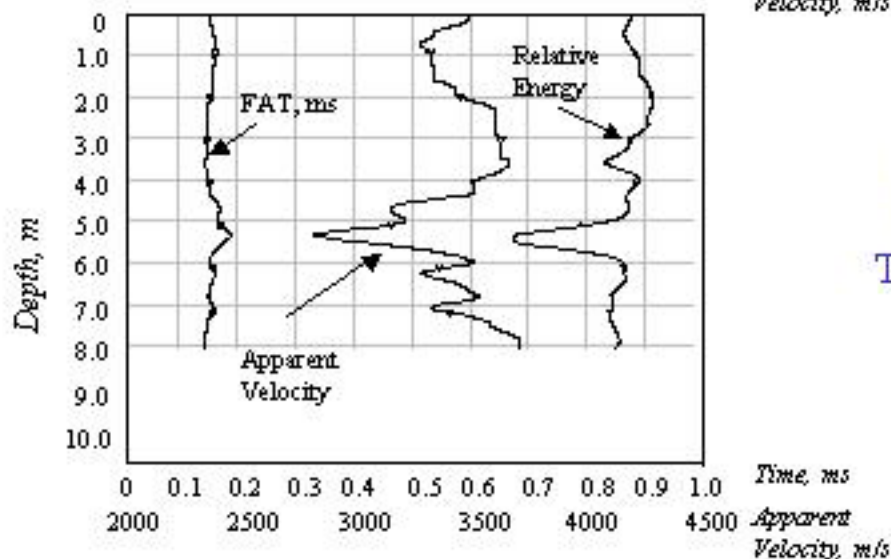
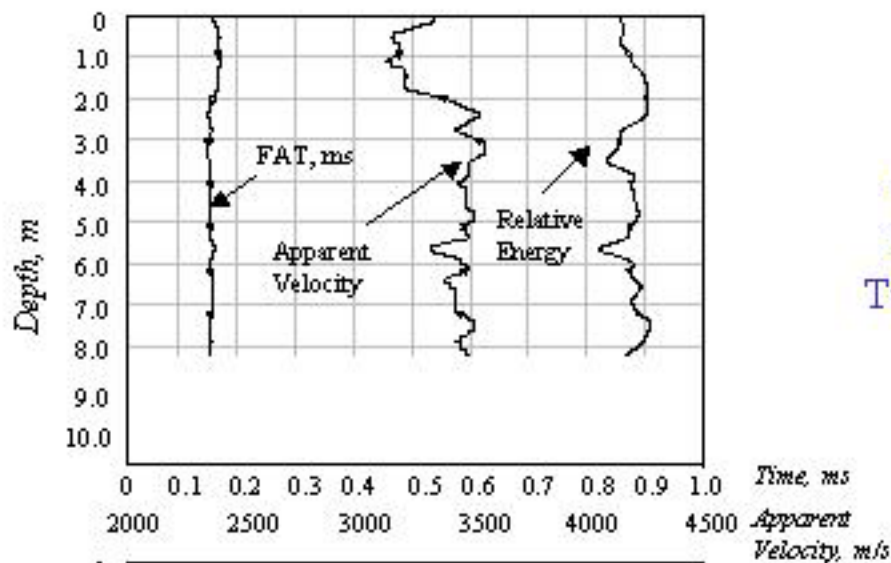
CSL Log  
Between  
Tubes 1 & 3



CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

## Abutment 2 Shaft 4 (after repair)

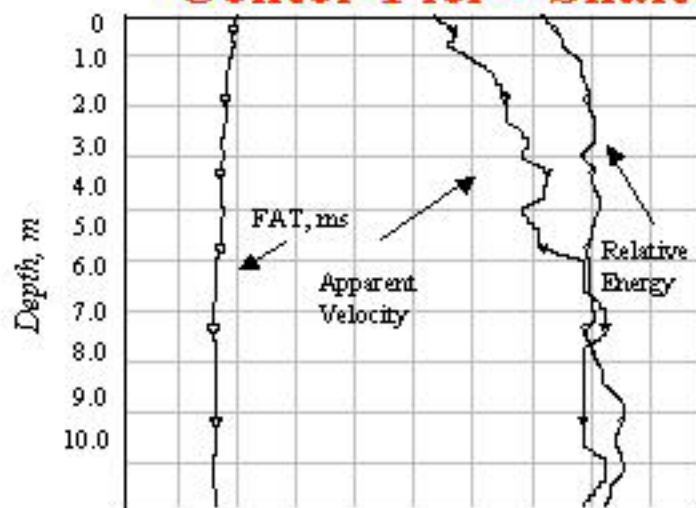


**PINEY CREEK BRIDGE  
ARROYO SECO BRIDGES  
CA PFH 129-1(1)**

**Center Pier Shafts 1, 2, 3 and 4**

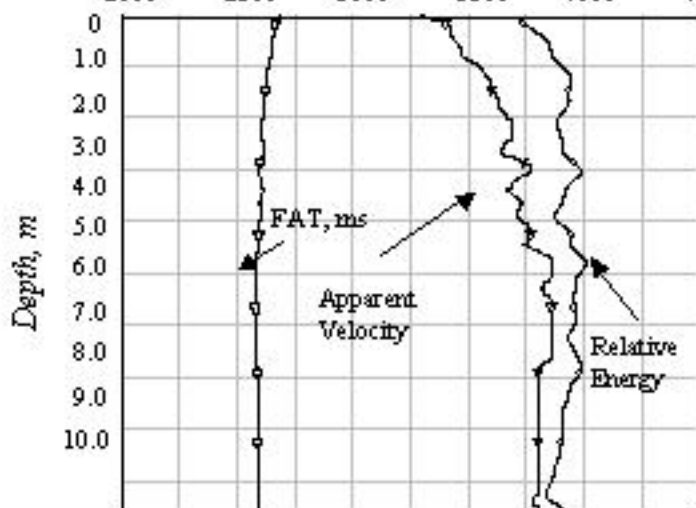
# Piney Creek Bridge

## Center Pier - Shaft 1



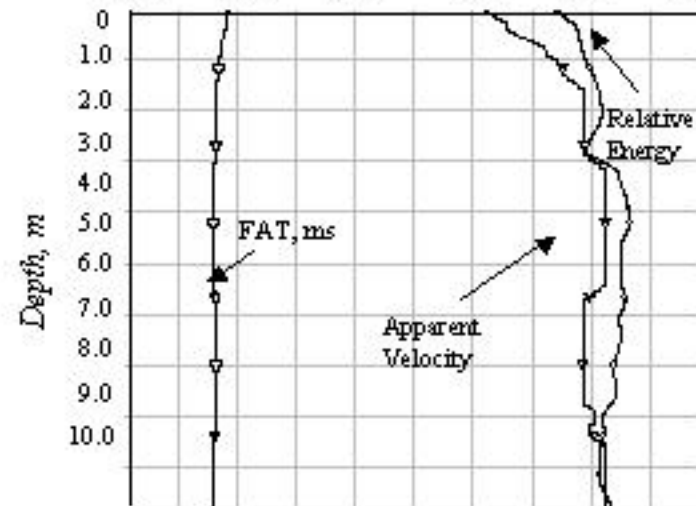
CSL Log  
Between  
Tubes 1 & 2

Time, ms  
Apparent  
Velocity, m/s



CSL Log  
Between  
Tubes 1 & 3

Time, ms  
Apparent  
Velocity, m/s

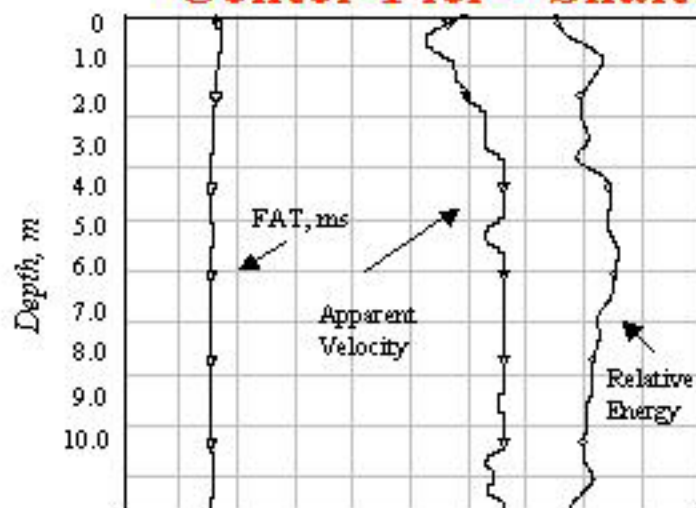


CSL Log  
Between  
Tubes 3 & 4

Time, ms  
Apparent  
Velocity, m/s

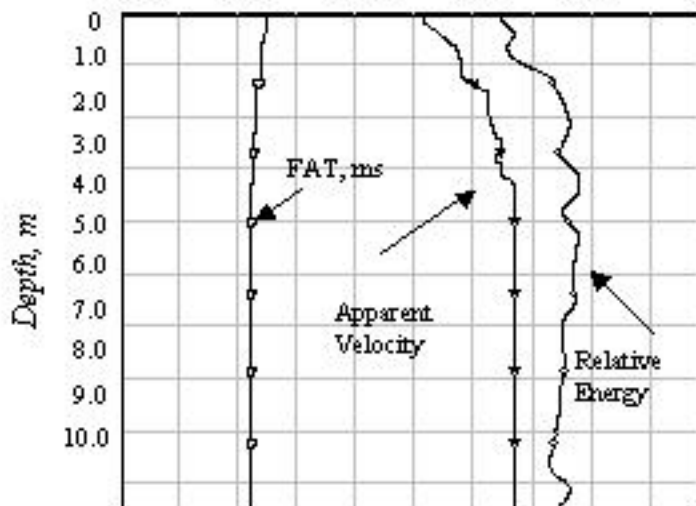
# Piney Creek Bridge

## Center Pier - Shaft 1



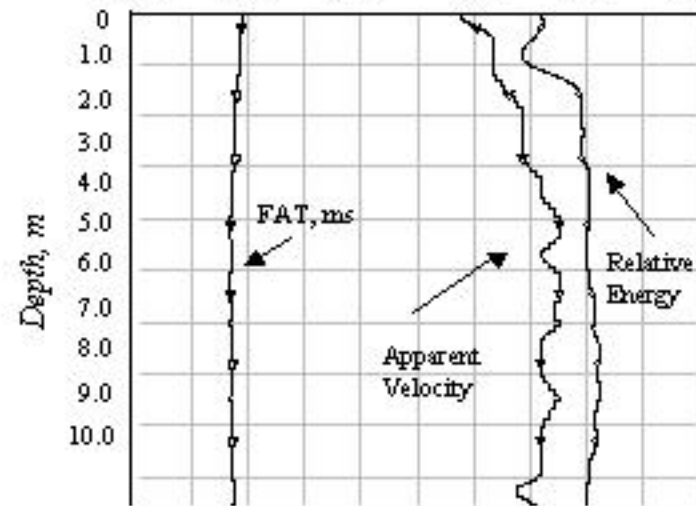
CSL Log  
Between  
Tubes 1 & 4

Time, ms  
Apparent  
Velocity, m/s



CSL Log  
Between  
Tubes 2 & 4

Time, ms  
Apparent  
Velocity, m/s

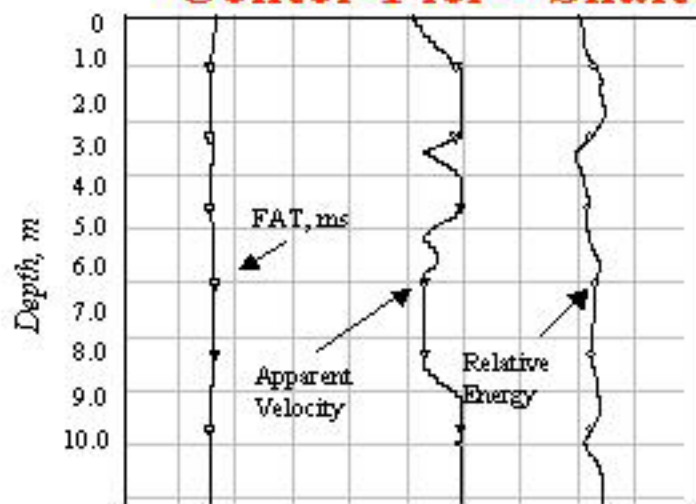


CSL Log  
Between  
Tubes 2 & 3

Time, ms  
Apparent  
Velocity, m/s

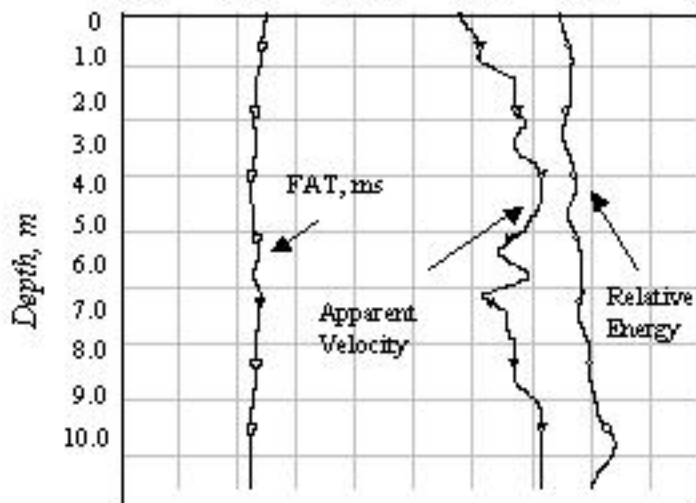
# Piney Creek Bridge

## Center Pier - Shaft 2



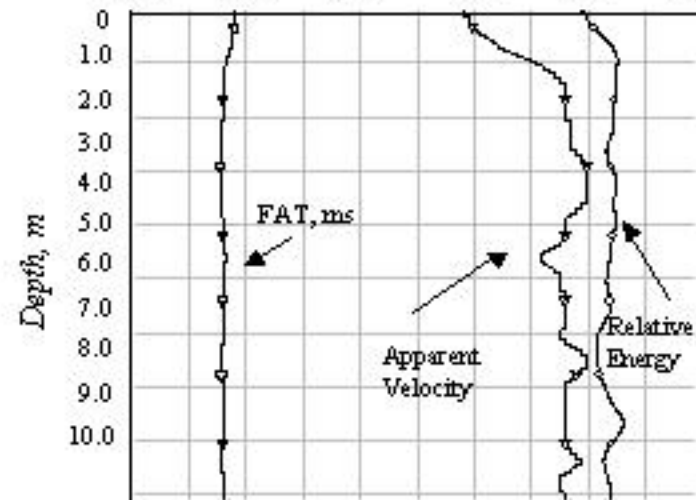
CSL Log  
Between  
Tubes 1 & 2

Time, ms  
Apparent  
Velocity, m/s



CSL Log  
Between  
Tubes 1 & 3

Time, ms  
Apparent  
Velocity, m/s

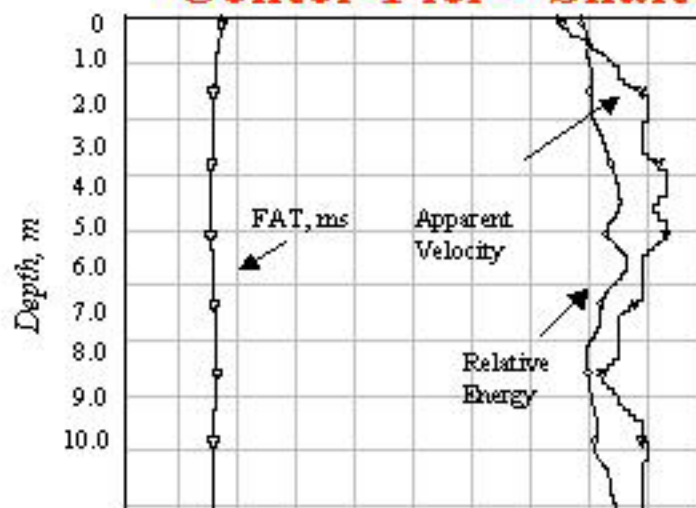


CSL Log  
Between  
Tubes 3 & 4

Time, ms  
Apparent  
Velocity, m/s

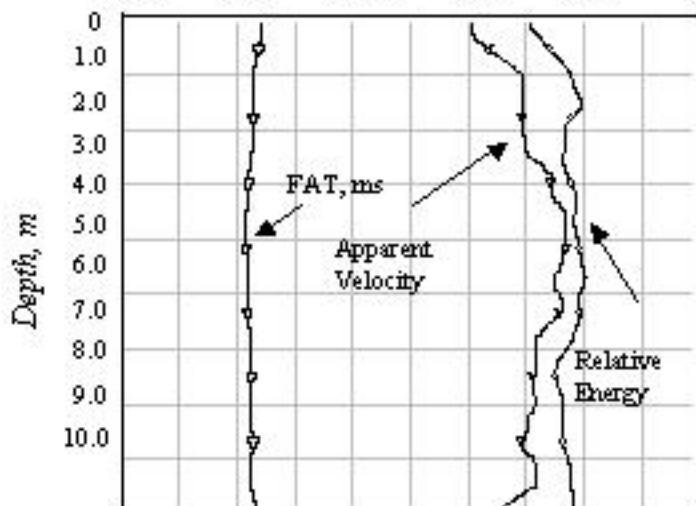
# Piney Creek Bridge

## Center Pier - Shaft 2



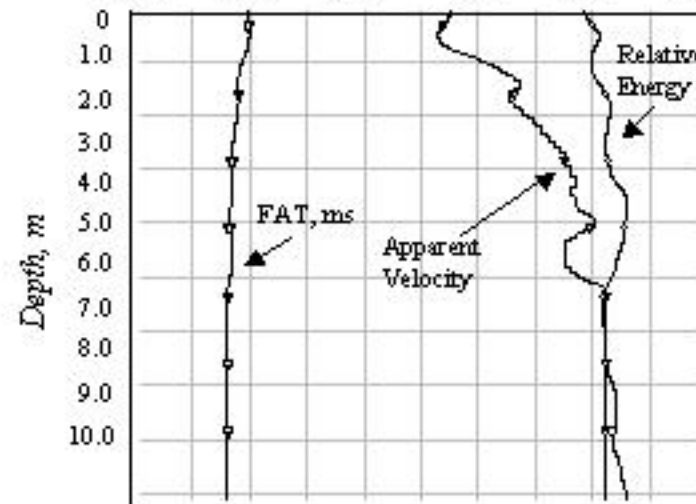
CSL Log  
Between  
Tubes 1 & 4

Time, ms  
Apparent  
Velocity, m/s



CSL Log  
Between  
Tubes 2 & 4

Time, ms  
Apparent  
Velocity, m/s

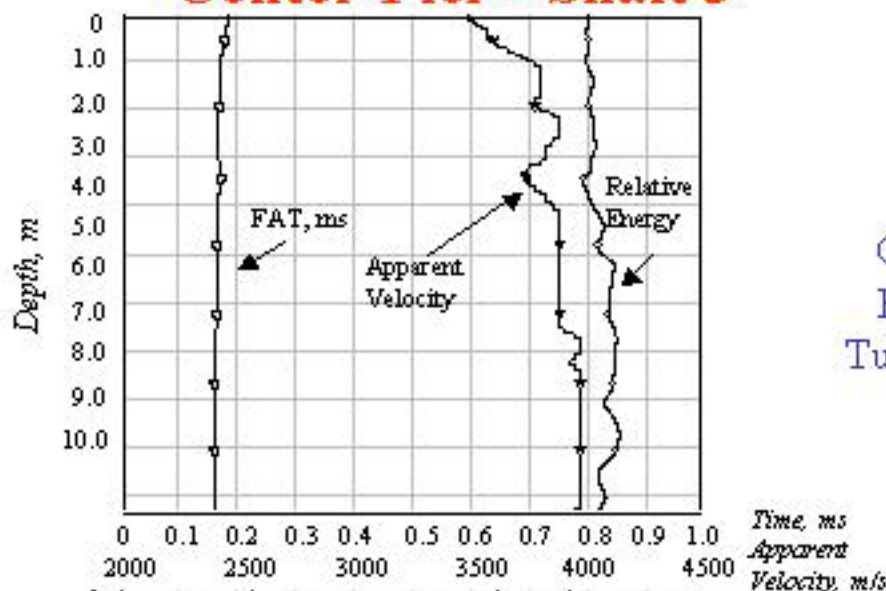


CSL Log  
Between  
Tubes 2 & 3

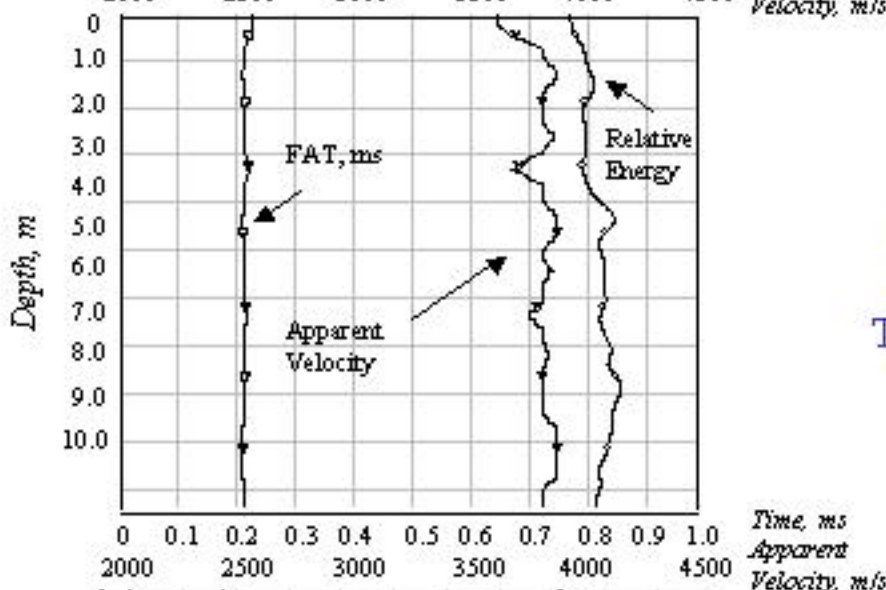
Time, ms  
Apparent  
Velocity, m/s

# Piney Creek Bridge

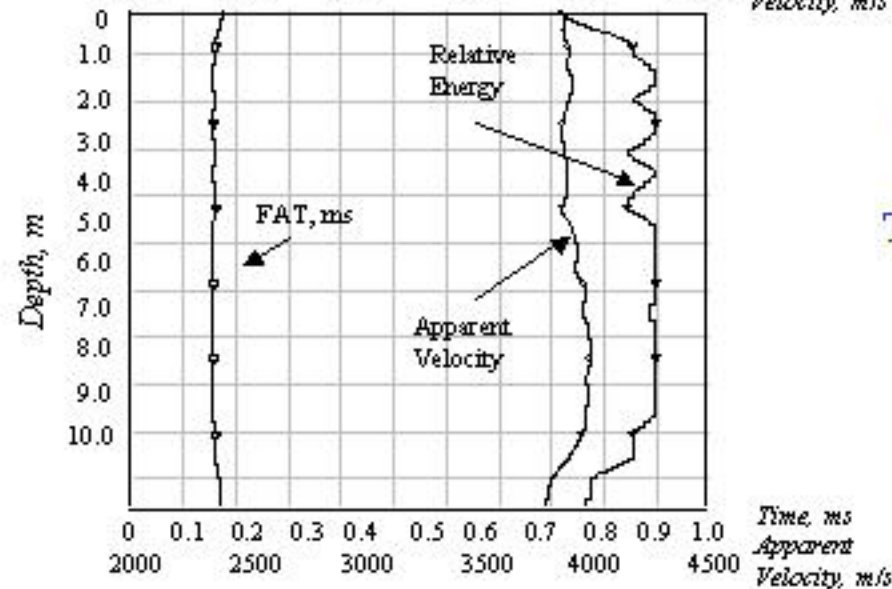
## Center Pier - Shaft 3



CSL Log  
Between  
Tubes 1 & 2



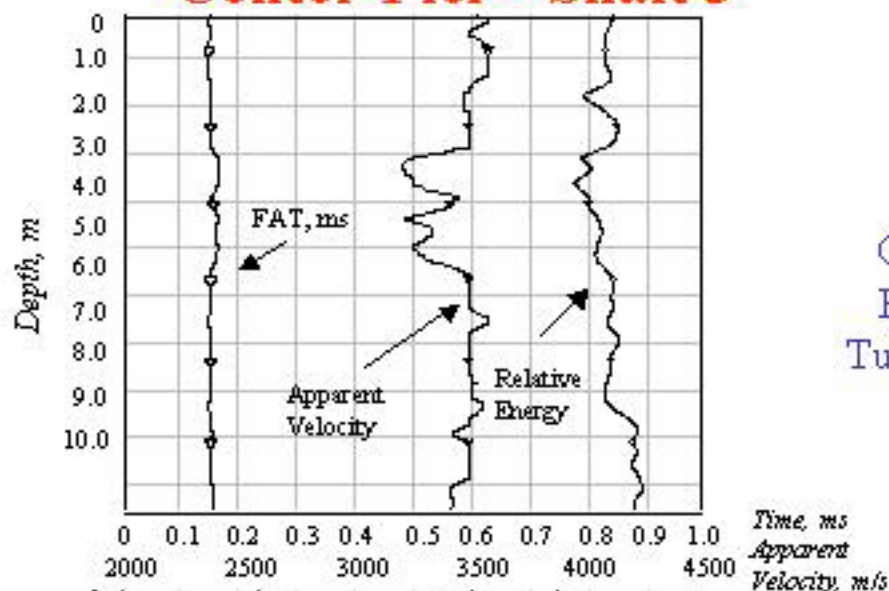
CSL Log  
Between  
Tubes 1 & 3



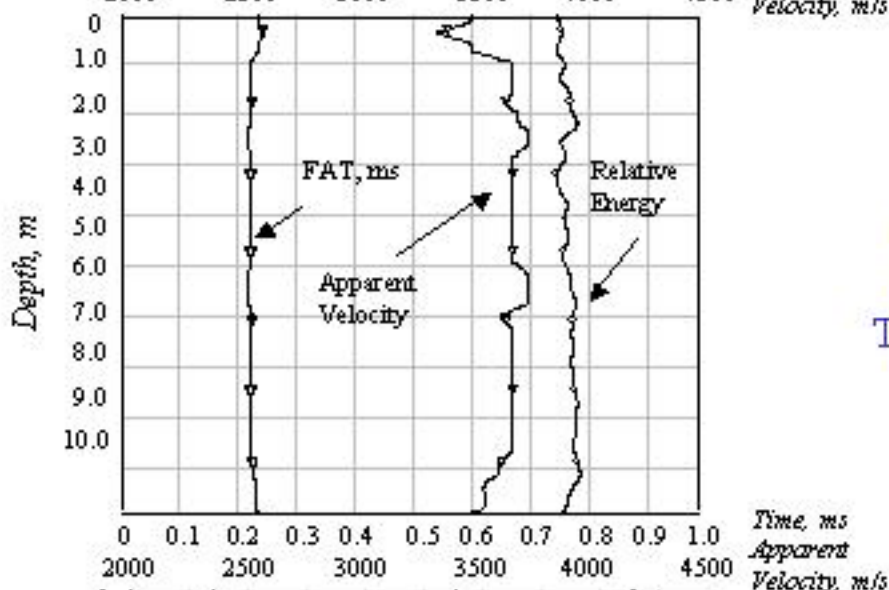
CSL Log  
Between  
Tubes 3 & 4

# Piney Creek Bridge

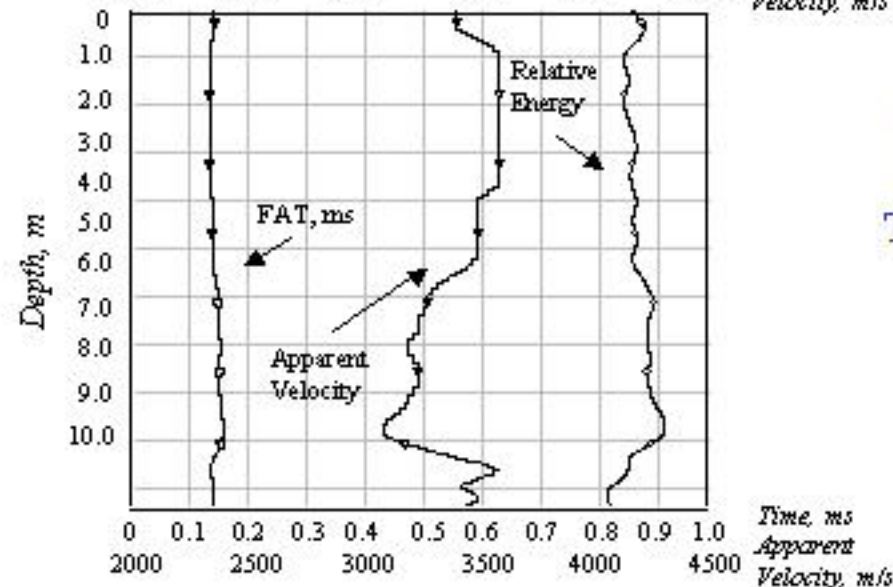
## Center Pier - Shaft 3



CSL Log  
Between  
Tubes 1 & 4



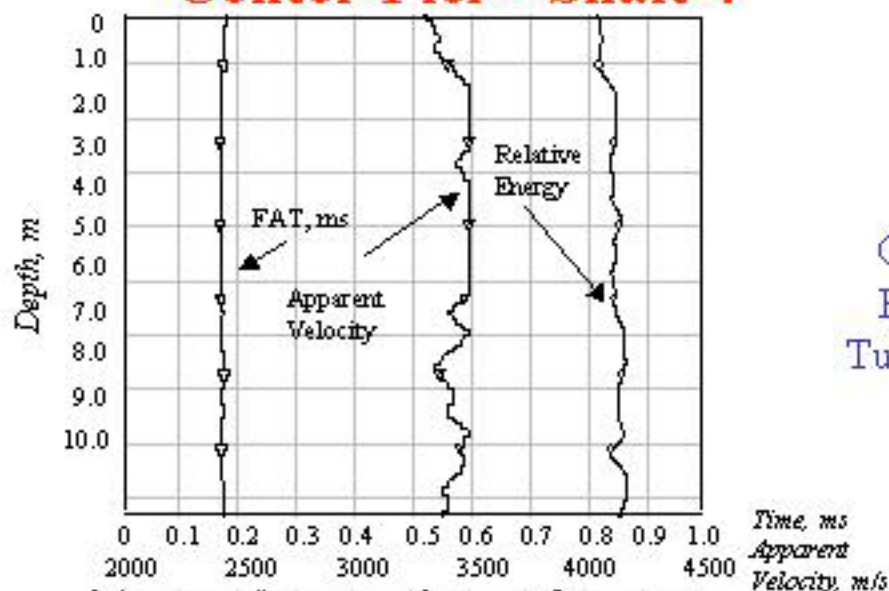
CSL Log  
Between  
Tubes 2 & 4



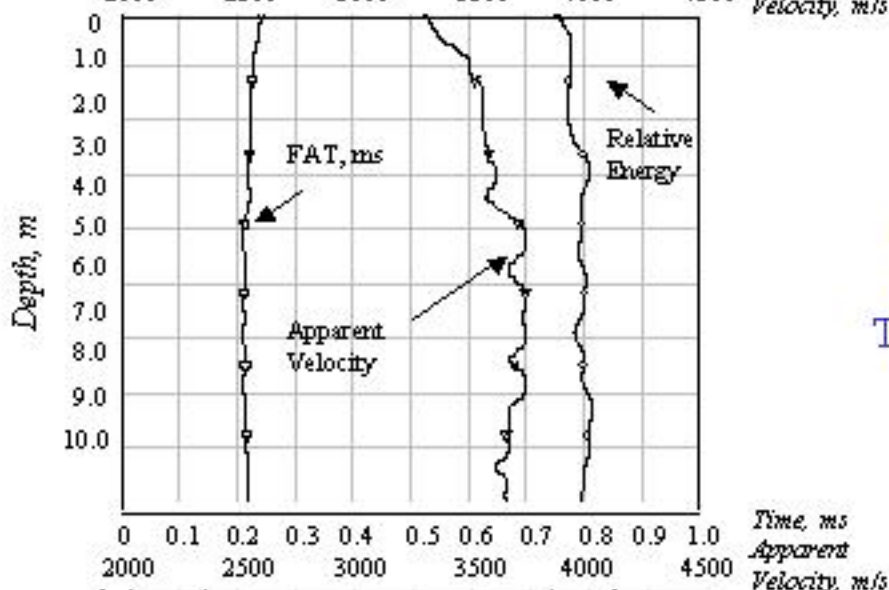
CSL Log  
Between  
Tubes 2 & 3

# Piney Creek Bridge

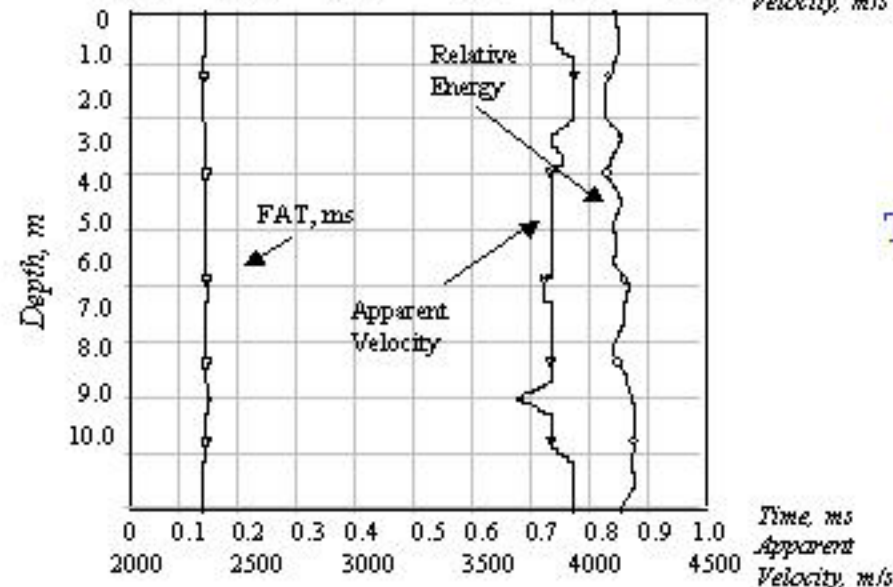
## Center Pier - Shaft 4



CSL Log  
Between  
Tubes 1 & 2



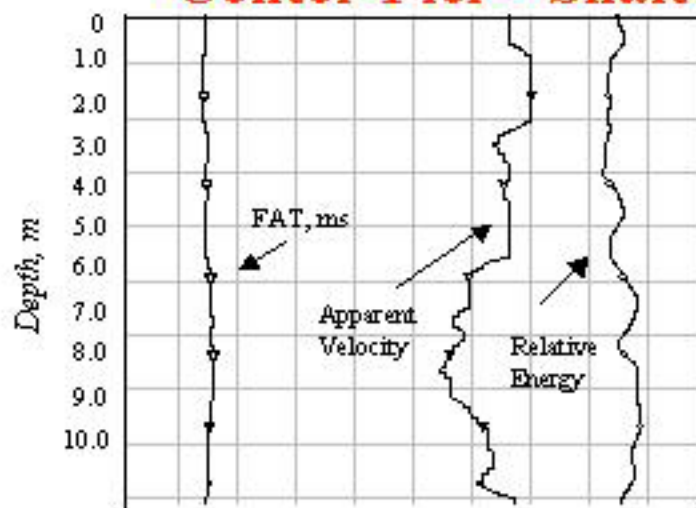
CSL Log  
Between  
Tubes 1 & 3



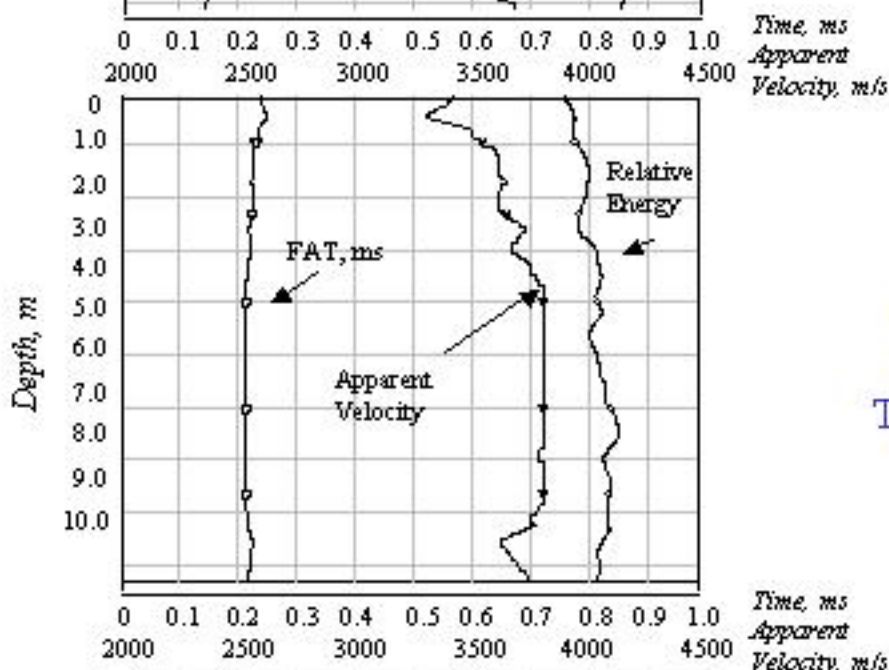
CSL Log  
Between  
Tubes 3 & 4

# Piney Creek Bridge

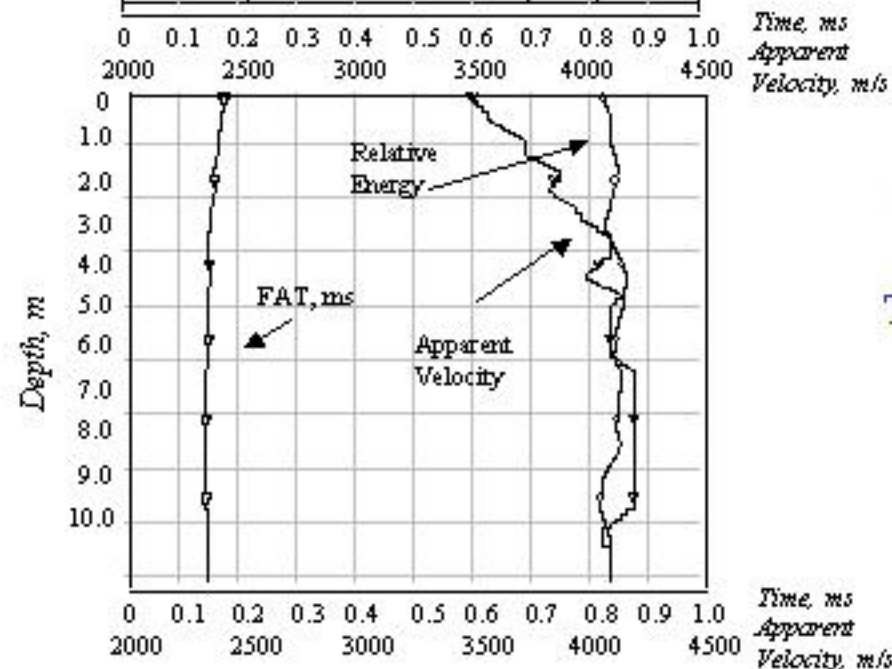
## Center Pier - Shaft 4



CSL Log  
Between  
Tubes 1 & 4



CSL Log  
Between  
Tubes 2 & 4



CSL Log  
Between  
Tubes 2 & 3